Review: *Marine Fish and Invertebrate Atlas: Summarizing Geographic Distribution and Population Indices in the Scotian Shelf and Bay of Fundy (1970-2020)*

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Overall, fantastic job. Well thought out and laid out. I really appreciate all the work you have put into this atlas. One consideration would be to provide the information on a Management Unit basis, but I understand why you have presented the work the way you have. I have some specific comments detailed by line number below. Thank you for pulling this together.

INTRODUCTION

- Line 241– The database isn't really the source of the information its the storage mechanism. The source is the survey.
- Line 243– Great overview and background.

METHODS

- Line 271– at least 2 separate trips.
- Figure 3– Sable Island is missing. Colour coding by depth grouping would be helpful.
- Table 1– Some explanation of 443-445 is needed.
- Line 301– Abundance is also captured.
- Line 313– An important consideration which is not often captured is the move from spring scales to electronic balances, off the top of my head it was early 90s, but would be worth noting.
- Line 320– Switch numbers to 200 and 1000 (order of numbers smallest to largest or people wonder if typo).

ANALYSES

- Line 333– type=1.
- Line 335– So no correction factors? Not even for gear type with different wing spread and hence different trawlable units? I recommend using the wing spreadhdifferences. I assume you are converting all densities to biomass or abundance per km_2 as you present all strata areas as suck so the wing spread is important to mention.
- Line 351– Stratified mean biomass. Should be using bootstrapped CI's, standard normal theory does not work for these types of surveys (Smith 1997).
- Line 374– More details on the Perry and Smith 1994 analyses / plots is needed. No many are familiar with this (although that dissappoints me).
- Line 381– Total abundance was not defined above, only biomass.
- Line 385– There is no α_{hi} nor β_{hi} in your model statement. Please fix the case on y_{hi}.

FIGURES

- Line 399– Probability of occurence should be reported as design weighted area occupied.
- Line 409– So were these CI's the bootstrapped? Different from what was reported above in analysis section.
- Line 411– Plus and minus 50% of the SD seems a little strange to me. Perhaps a range of values, like the IQR.
- Line 416 on– What category of species get these plots?
- Line 430– Need to define median abundance, not defined in analyses above.

RESULTS

- Table 4– Probably don't need to report areas to 3 decimal places.

DISCUSSION

- Line 484– Did she really use quintiles? I didn't see the paper, but wanted to check if was spelling.
- Line 572– I agree with this proposal for a community of practice, lots of people doing lots of great work. Making sure those 'apples' to 'apples' analyses are done is important.
- Overall– Reads really well, some great details. I didn't spend too much time of the discussion, but I think you have captured a lot of info without worring about the details.

APPENDIX

I am just going to go through a couple of examples.

- IDW maps– In caption describe what P(occ) represents.
- Range by year plots– I assume its a loess smoother, pls include in caption.
- Condition plots– Lots of lines going on in these plots, need to describe in the caption what they represent. I would suggest changing the data series to type = 'p' to remove at least one of the sets of lines.

- Perry and Smith plots– I think you have these lines labelled incorrectly. The Depth, Temperature and Salinity lines should not vary by species, the catch weighted lines will vary. The solid black lines labelled 'Catch' are constant across species whereas the dashed lines vary. Also it is useful to show where the maximum difference between catch and sampled. Hate to be that guy, but I really like Figure 55 `https://publications.gc.ca/collections/collection_2013/mpo-dfo/Fs70-5-2013-024-eng.pdf`, shows the time series of habitat sampled, selected and where the maximum deviance bewteen cumulative distribution curves occurs.
- DDHS plots Need to define what the red and black lines represent in these plots.